

cm² per hour", and does not cite a lower limit for the alpha particle emissive characteristic. Thus, the Patent Office is recognizing that a person of ordinary skill in the art would know that the lower limit is 0, and that the claim is therefore definite without specific recitation of a lower limit for the alpha particle emissive characteristic.

For the above-discussed reasons, applicant believes that the claim 1 recited "alpha flux less than 0.0005 cts/cm²/hr" is definite within the meaning of §112, and requests withdrawal of the Examiner's §112 rejection that is currently pending against such claim. This was discussed with the Examiner during the telephone interview of 5/1/07, and it was agreed that the §112 rejection of claim 1 will be withdrawn.

Claims 8 and 9 contain recitations similar to that of claim 1, and accordingly applicant requests withdrawal of the §112 rejections pending against such claims for reasons similar to those discussed above regarding claim 1.

Claim 7 stands rejected under §112 for reciting a solder predominantly comprising Bi, Cu or In. The Examiner contends that the specification fails to disclose such solder. Applicant respectfully refers the Examiner to claim 2 of the originally-filed application. Such claim recites a solder that predominantly comprises Ag, Bi, Cu, In, Pb or Sn. The sub-group "Bi, Cu or In" recited in claim 7 is thus supported by the full group originally recited in claim 2, and therefore was properly disclosed in the originally-filed application. Accordingly, applicant respectfully requests withdrawal of the §112 rejection that is currently pending against claim 7. This was discussed with the Examiner during the telephone interview of 5/1/07, and it was agreed that the §112 rejection of claim 7 will be withdrawn.

Claim 1, from which claims 2-9 depend, stands rejected as being obvious in view of Miller, and the various other claims stand rejected as being obvious over Miller, either alone (claims 2 and 6-9), or in combination with Andricacos (claims 4 and 5); Schrock (claim 3) or Iwasaki (claim 7). Applicant respectfully requests reconsideration of such rejections.

Claim 1 recites a semiconductor package comprising a solder having an alpha flux of less than 0.0005 cts/cm²/hr.

The Examiner contends that Miller teaches the subject matter of claim 1 at various locations where Miller teaches a solder having an alpha flux less than 0.001 cts/cm²/hr.

Applicant notes that Miller's disclosure may be considered to be disclosure of a range (specifically, a range of alpha flux of from 0 to 0.001 cts/cm²/hr), and the recitation of claim 1 of an alpha particle flux less than 0.0005 cts/cm²/hr may be considered to be a range (specifically, a range of from 0 cts/cm²/hr to 0.0005 cts/cm²/hr) that is within the range disclosed by Miller. Two issues which determine whether the range of claim 1 is obvious from Miller's disclosure are: (1) whether Miller enables the range recited in claim 1 (see, MPEP §2121), and (2) whether there is some "criticality" within applicants recited range which achieves a result that would not be contemplated by the range disclosed in Miller (see, MPEP §2144.05). This was discussed with the Examiner during the telephone interview of 5/1/07. No agreement was reached regarding the allowability of claim 1 over Miller, but the Examiner indicated that she may be persuaded to allow claim 1 if applicant provides suitable arguments for the "criticality" of the recited range. The Examiner was less enthusiastic about Applicant's argument regarding the non-enablement of Miller's teachings, but indicated a willingness to consider such arguments.

Applicant submits that Millar does not enable the claim 1 recited alpha particle flux of less than 0.0005 cts/cm²/hr because Miller provides no teacher suggestion that there is a method suitable to achieve the claim 1 recited of alpha particle flux of less than 0.0005 cts/cm²/hr. Instead, the discussion in Miller indicates that an alpha particle flux of 0.001 cts/cm²/hr is acceptable for the applications described therein, and never suggests any method which would enable formation of a solder having an alpha flux of less than 0.0005 cts/cm²/hr.

Applicant submits that the claim 1 recited alpha particle flux of less than 0.0005 cts/cm²/hr is a "critical" improvement over the prior art, as evidence by applicant's disclosure, and by the cited reference of Miller. Specifically, both Miller and applicant's specification discuss the industry desire to reduce alpha flux in solders, and accordingly evidence criticality associated with having solders with increasingly low alpha fluxes (see, for example, Miller col. 2, Ins. 15-17; and applicant's specification at ¶'s 0013 and 0032). Thus, Miller and applicant's specification both indicate that there are significant advantages to reducing alpha particle emission, and thus evidence the criticality of an improvement in reducing alpha particle emissions to the levels recited in claim 1.

Claims 2-9 depend from claim 1, and are therefore allowable for at least the reasons discussed above regarding claim 1, as well as for their own recited features which are neither shown or suggested by the cited art.

Claims 1-9 are allowable for the reasons discussed above. Applicant therefore requests that the Examiner's next action be a Notice of Allowance formally allowing claims 1-9.

Dated:

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By:

Respectfully submitted,


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